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Abstract N°: 6416

Myositis

A Large increase in Anti-Melanoma-Differentiation-Associated-Gene-5 (MDA5) Antibody Positivity and Associated Disease in Yorkshire since 2020

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Background:

Melanoma differentiation-associated protein 5 (MDA5) is an intracellular detector of viral RNA. It is considered that viral infections are involved in the aetiology of autoimmune diseases, including autoimmune myositis. Previously we reported on a post-COVID-19 pandemic cluster of myositis occurring in the Yorkshire region (De Marco, 2022), despite the usually low frequency observed in the UK. More recently, we noticed increased anti-MDA5 positivity rate in myoblot tests.

Objectives:

Our aim is to appraise the significance of the observed increased anti-MDA5 positivity recognized at our tertiary centre.

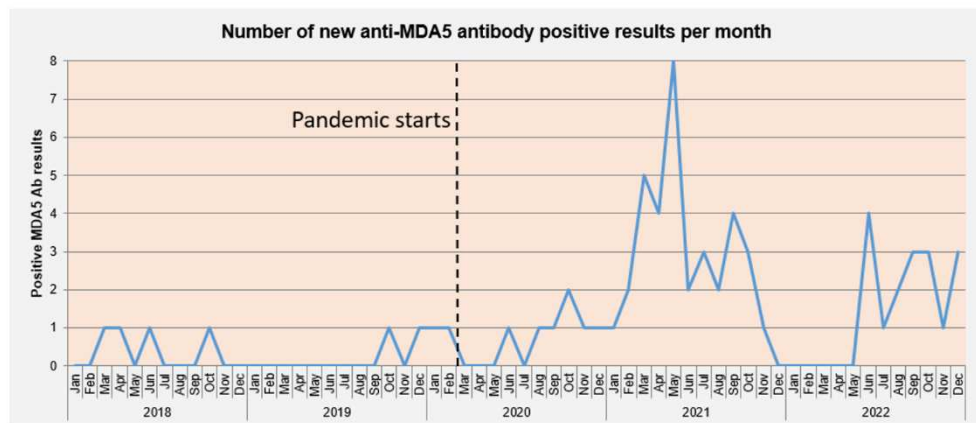
Methods:

The Leeds Teaching Hospitals NHS Trust serves as an immunology laboratory reference for the wider Yorkshire region (3.6 million residents). We audited the increased anti-MDA5 positivity in relationship to other muscle-specific autoantibodies (Euroimmun immunoblot©) analysing retrospectively all tests performed between January 2018 and December 2022. Clinical notes review focused on: MDA5+ without disease; patterns of symptomatic MDA5 disease (including degree of ILD); muscle or other organs involvement; response to therapy. We also appraised the temporal associations between recent COVID-19 infection and SARS-CoV-2 vaccination.

Results:

Requests for anti-MDA5 were stable between 2018 and 2020, but doubled thereafter. Anti-MDA5 positivity went from 0.6% to 4.9% in that period, dropping to 2.2% at the end of 2022 (Figure 1). Out

of 66 individuals testing positive for anti-MDA5, clinical notes were available in 50 cases. Eleven had myositis without ILD (7 had dermatomyositis/"mechanic" hands rash). 18/50 cases developed ILD (12 had also myositis associated pathology, including 5 dermatomyositis rash and 5 "mechanic" hands). No cases of carditis were recorded. After treatment, outcome was stable/improved in 17 cases (6 ILD cases). Yet, 3 cases worsened and 6 died despite therapy (ILD cases). Twenty cases had signs described as within the connective tissues diseases spectrum (without any lung involvement), though no formal diagnosis. A minority of cases were associated with evidence of SARS-CoV-2 infection or vaccination, with 15 cases vaccinated before disease onset and 4 with preceding COVID-19 infection.



Summary per year	2018	2019	2020	2021	2022
Number of requests	364	535	459	812	1011
Number of patients	339	505	425	726	947
Total MDA5 Ab positive	4	3	10	40	22
New MDA5 Ab positive	4	2	9	35	17
Percentage positive (of total requests)	1.1	0.6	2.2	4.9	2.2

Conclusion:

Our data show an increased rate of anti-MDA5 positivity in the latter stages of the COVID-19 pandemic, as previously noted in the UK (Hannah J, ACR 2022). Most cases had MDA5 positivity without confirmed autoimmune disease and despite the MDA5 positivity occurrence in the face of the COVID-19 pandemic further longitudinal observation is needed to ascertain any potential links with either infection, vaccination or both.

References:

- 1) DeMarco G, et al Vaccines (Basel) 2022; 10: 1184.
- 2) Hannah J, et al. ACR Convergence Meeting 2022; Abstract Number: 1857

Acknowledgements:

Disclosure of interest: None declared